

## Abstract

An optical fiber for optical amplification, characterized in that a full width at half maximum of gain spectrum is 45 nm or more; and a maximum value of power conversion efficiency is 80 % or more. A method for producing a rare earth element-doped glass for use in manufacturing the optical fiber, which comprises a deposition step of depositing fine silica glass particles and a co-dopant (a) to prepare an aggregate of fine silica glass particles doped with the co-dopant (a); and a immersion step of immersing the aggregate of fine silica glass particles prepared in the deposition step in a solution containing the rare earth element and the co-dopant (b) to thereby dope the aggregate of fine silica glass particles with the rare earth element component and the co-dopant (b).